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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

HECKENBERG JR. D.

ART UNIT

PAPER NUMBER

1722

DATE MAILED:

10/30/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

**Office Action Summary**

Applicant No.

09/470,967

Applicant(s)

SETA ET AL.

Examiner

Donald Heckenberg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 and 26-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 26-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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**DETAILED ACTION**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 11, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Annis, Jr., et al. (US 3,674,401).

Annis, Jr., et al. teaches an injection molding apparatus, with reference to fig. 3, the apparatus comprising a plasticating unit 6 for plastication, an injection unit 50 connected to the plasticating unit through a connecting passage 12 to inject the plasticated material into a mold 66, and a buffering unit 51 provided in the connecting passage to reserve the material plasticated in the plasticating unit in an amount at least equal to the injection quantity of the resin per shot, and feed the resin into the injection unit. Annis, Jr. et al. further teach the buffering unit to comprise a pot 51, a plunger 52 disposed in the pot applicable to be moved forward and backward in the pot, a buffering chamber provided between the pot and the plunger for reserving the plasticated material, and

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a means for energizing 54 the plunger in the resin extrusion direction.

In a different embodiment as shown in fig. 2, Annis, Jr., et al. teach a plasticating unit 2 for plasticating a material, and an injecting unit 14 connected to the plasticating through a connecting passage 18 to inject the material into the mold 44, the plasticating unit comprising a cylinder 4 and a screw 6 rotatable and movable in the axial direction in the cylinder (see col. 5, lns. 68-73), as such that a buffering chamber is defined by a top portion of the screw and cylinder to reserve an amount of the material in an amount that is equal to the injection quantity as such the with a means for energizing the screw forward in the axial direction the material is feed into the injection unit (see col. 5, lns. 73 - col. 6, ln. 5). Annis, Jr., further teaches in this embodiment that the energizing means comprises a fluid-pressure cylinder 38.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

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art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 3, 13, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annis, Jr. et al., in view of Taniguchi (US 5,002,717).

Annis, Jr., et al. teach the apparatus as described above. Annis, Jr., et al. also fails to teach a pressure sensor for detecting a pressure in the buffering chamber, and a pressure controlling means for controlling the energizing means corresponding to the value detected by the pressure sensor so that the pressure in the chamber is kept constant.

Taniguchi teaches an injection molding apparatus comprising an injection plunger 4 and buffering chamber assembly wherein the pressure in the chamber (injection pressure) is monitored using a pressure sensor 19 which works with a pressure controlling means for controlling the energizing means of the apparatus based upon the value detected by the pressure sensor (col. 4, lns. 45-59).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Annis, Jr., et al. as such to have provided the apparatus with a pressure sensor for detecting the pressure of the buffering chamber and a pressure controller working with the pressure sensor to adjust the energizing means as suggested by

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Taniguchi because this would allow for better control of the pressure of the material being injected into the mold.

7. Claims 4-7, and 28-31 rejected under 35 U.S.C. 103(a) as being unpatentable over Annis, Jr., et al. in view of Cheng (US 5,098,267).

Annis, Jr., et al. teach the apparatus as described above. Annis, Jr., et al. fails to disclose the energizing means for the injection plunger embodiment, or teach the use of a spring or electric actuator for the embodiment using a reciprocating screw.

Cheng teaches an injection molding apparatus comprising an injecting plunger 12, wherein the plunger is energized by a spring 18, or alternatively a mechanical device or fluid pressure cylinder (col. 3, lns. 62-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Annis, Jr., et al. as such to have used a spring, fluid pressure cylinder, or mechanical device such as an electric actuator as the energizing means as suggested by Cheng for the injection plunger in the injection plunger embodiment, or the screw in the reciprocating screw embodiment, because

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these are all suitable alternatives to provide the energizing force for the injection plungers.

8. Claims 8, 10, 12, 14-15, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annis, Jr., et al. and Taniguchi as applied to claims 3, 13, and 27 above, and further in view of Cheng.

Annis, Jr., et al. and Taniguchi disclose the apparatus as described above. Annis, Jr., et al. and Taniguchi fail to disclose the energizing means for the injection plunger embodiment, or teach the use of a spring or electric actuator for the embodiment using a reciprocating screw.

Cheng teaches an injection molding apparatus comprising an injecting plunger 12, wherein the plunger is energized by a spring 18, or alternatively a mechanical device or fluid pressure cylinder (col. 3, lns. 62-65).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Annis, Jr., et al. and Taniguchi as such to have used a spring, fluid pressure cylinder, or mechanical device such as an electric actuator as the energizing means as suggested by Cheng for the injection plunger in the injection plunger embodiment, or the screw in the reciprocating screw



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embodiment, because these are all suitable alternatives to provide the energizing force for the injection plungers.

It further would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Annis, Jr., et al. as such to have provided the apparatus with a pressure sensor for detecting the pressure of the buffering chamber and a pressure controller working with the pressure sensor to adjust the energizing means as suggested by Taniguchi because this would allow for better control of the pressure of the material being injected into the mold.

Regarding the pressure sensor and control being used to keep the pressure in the buffering chamber substantially constant, the desired pressure is dependent on the method and use of the apparatus, and as such not germane to the apparatus claims of the instant application. The device disclosed by Annis, Jr., et al., Cheng, and Taniguchi is capable of being used as such to provide a constant pressure, and therefore meets the claim limitation.

9. Claims 9, and 33-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Annis, Jr., et al. in view of Morita (US 6,109,909).

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Annis Jr., et al. teach the apparatus as described above. Annis Jr., et al. fail to teach the apparatus to further comprise a position detecting sensor for detecting the placement of the plunger in the plunger embodiment, or the position of screw in the screw embodiment, and a plastication controlling means for controlling the plasticating unit corresponding to the displacement detected by the position sensor.

Morita teaches an injection molding apparatus comprising an injection plunger 18 or 22 wherein the plunger is provided with position sensor and means for adjusting the plastication unit based on the displacement and position of the plunger (col. 12, lns. 6-30).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Annis Jr., et al. as such to have provided the apparatus with position sensor in working relation with a plastication controlling means as suggested by Morita because this would allow for control of the material feed to the buffering chamber, and thereby control of the amount of material injected into the mold.

10. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annis, Jr., et al. modified by Cheng as

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applied to claims 4-7 and 28-31 above, and further in view of Morita.

Annis Jr., et al. and Cheng teach the apparatus as described above. Annis Jr., et al. and Cheng fail to teach the apparatus to further comprise a position detecting sensor for detecting the placement of the plunger and a plastication controlling means for controlling the plasticating unit corresponding to the displacement detected by the position sensor.

Morita teaches an injection molding apparatus comprising an injection plunger 18 or 22 wherein the plunger is provided with position sensor and means for adjusting the plastication unit based on the displacement and position of the plunger (col. 12, lns. 6-30).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Annis Jr., et al. and Cheng as such to have provided the apparatus with position sensor in working relation with a plastication controlling means as suggested by Morita because this would allow for control of the material feed to the buffering chamber, and thereby control of the amount of material injected into the mold.

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11. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Annis, Jr., et al., Taniguchi, and Cheng as applied to claims 8, 10, 12, 14-15, and 32 above, and further in view of Morita.

Annis, Jr., et al., Taniguchi, and Cheng disclose the apparatus as described above. Annis Jr., et al. , Taniguchi, and Cheng fail to disclose the apparatus to further comprise a position detecting sensor for detecting the placement of the plunger in the plunger embodiment, or the position of screw in the screw embodiment, and a plastication controlling means for controlling the plasticating unit corresponding to the displacement detected by the position sensor.

Morita teaches an injection molding apparatus comprising an injection plunger 18 or 22 wherein the plunger is provided with position sensor and means for adjusting the plastication unit based on the displacement and position of the plunger (col. 12, lns. 6-30).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Annis Jr., et al., Taniguchi, and Cheng as such to have provided the apparatus with position sensor in working relation with a plastication controlling means as suggested by Morita because this would allow for control of the material feed

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to the buffering chamber, and thereby control of the amount of material injected into the mold.

12. Applicant's arguments filed September 13, 2001 have been fully considered but they are not persuasive.

The Applicant argues with respect to claims 1-2, 11, 13, and 26-27 that the Annis reference fails to teach an injection molding unit wherein the injecting unit is connected to a plasticating unit through a connecting passage to inject the plasticated resin into a mold, and a buffering unit is provided in this connecting passage. The Applicant contends that Annis teaches instead a pump that is interposed between the a plastication screw and the machine outlet.

This argument is not persuasive. The "pump" referred to by the Applicant functions as a buffering unit in the connecting passage as described above, as resin is directed into this auxiallary passage before being injected into the mold (see col. 6, lns. 32-57). Therefore, although Annis does not describe this structure as a buffering unit, it is clear that this structure performs the same function of a buffering unit, and therefore meets the claim limitations of the instant application as described above.

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Similarly, the Applicant argues with respect to claims 4-7, 9, 16-19, 28-31, and 33-34 that the secondary references of Cheng and Morita fail to teach the deficiencies in Annis. However, as shown above, there are no deficiencies in Annis, and therefore the rejection of these claims based on the various combinations of references as described above is proper.

The Applicant argues with respect to claims 3, 8, 10, 12-15, 20, 27, 32 and 34 that the combination of references teaches the use of a pressure sensor as described in these claims. The Applicant specifically argues that while Taniguchi reference teaches a pressure sensor, this sensor is not related to the pressure of the resin in the buffering chamber.

The Taniguchi reference does teach the injection pressure sensor to measure the pressure of the resin in the injection passage as recited in col. 4, lns. 45-59. As described in this passage, this is done so through the measurement the pressure in the hydraulic control system. However, the pressure in the hydraulic control system is equivalent to the injection pressure in the apparatus operation. Therefore, the pressure sensor does operate as measuring and controlling the apparatus based on the resin injection pressure. No claim language of the instant application precludes the pressure sensor from operating in such a manner. The teaching of Taniguchi therefore meets the claim

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limitations of the instant application, and would be an obvious modification to the primary reference of Annis as described above.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald

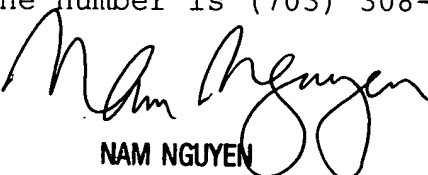
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Heckenberg whose telephone number is (703) 308-6371. The examiner can normally be reached on Monday through Friday from 9:30 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached at (703) 308-3322. The official fax phone number for the organization where this application or proceeding is assigned is (703) 305-7718, and the unofficial fax phone number is (703) 305-3602.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Donald Heckenberg  
October 22, 2001

  
NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700